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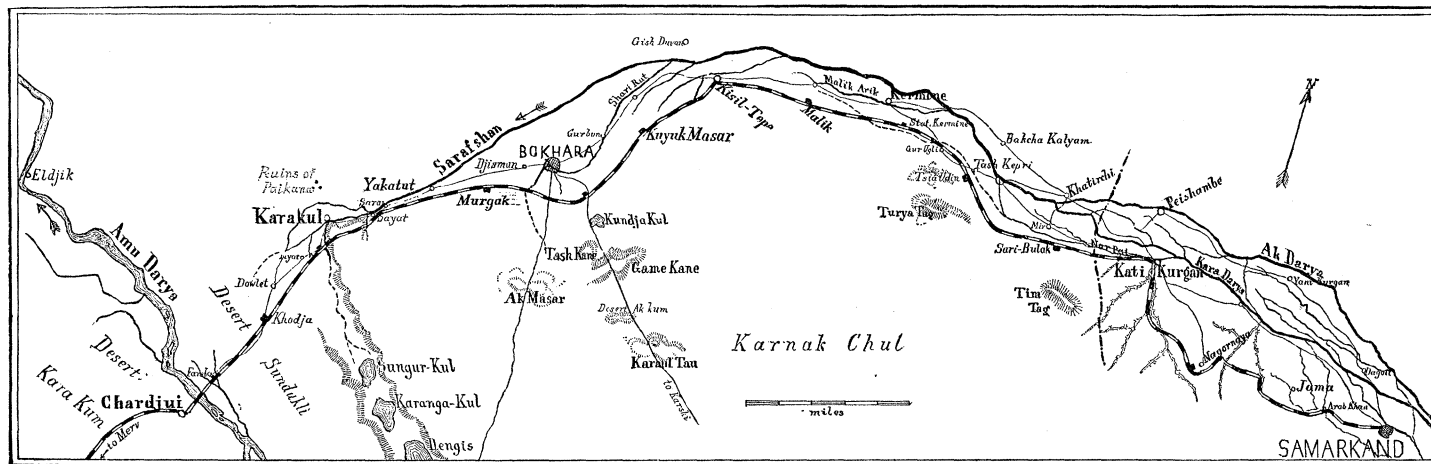
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no doubt be greatly increased within a short time. Whatever our opinion of the political institutions of Russia may be, in Central Asia they prove themselves able and energetic civilizers, and their influence upon the vast extent of country east of the Caspian Sea has been highly beneficent.

MINING INDUSTRIES OF NEW ZEALAND.—The report on the mining industries of New Zealand for the year 1887, which has recently been issued, shows the great importance of these industries to the colony. There are nearly 12,000 persons engaged in gold-mining, the average annual earnings of miners being \$325, and the value of the gold exported being somewhat less than \$4,000,000. About 1,500 persons were engaged in coal-mining, their average earnings being \$540. While the value of gold-production has been decreasing continually ever since 1866, when it was more than \$14,000,000, the amount of coal has steadily increased, being at present over half a million tons, of which only a small portion is exported. The total value of mineral exports other than gold has made rapid progress during the past ten years, being more than \$2,000,000 in value, as compared to \$750,000 in 1878. Of special interest is the production of kauri-gum, on which the mining department reports, although it is a vegetable product. This product is the resinous exudation of the kauri-pine (*Dammara Australis*). It is found in deposits which extend more or less over the northern portion of the Auckland Provincial District, in forests, and more extensively in

advertised as "not a rum drink," contains 13.2 per cent of alcohol. Another, admitted to contain Marsala wine, contains as much alcohol as that wine. A coca beef tonic, advertised as made "with sherry," contains 23.2 per cent of alcohol, while sherry contains but 18 or 20 per cent. Parker's tonic, claimed to be a purely vegetable extract, "stimulus to the body without intoxicating," contains 41.6 per cent of alcohol. Whiskey and brandy contain but 50 per cent of alcohol. The advertisement of this tonic says, "Inebriates struggling to reform will find its tonic and sustaining influence on the nervous system a great help to their efforts." Schenck's seaweed tonic, said to be distilled from seaweed, and to be perfectly harmless, contains 19.5 per cent of alcohol; Baker's stomach bitters, 42.6 per cent; Hoofland's German bitters, advertised to be purely vegetable, and free from alcoholic stimulant, 26.5 per cent; and Hostetter's stomach bitters, 44.3 per cent. Kaufmann's sulphur bitters contains no sulphur, and is advertised to contain no alcohol, but was found by Dr. Davenport to contain 20.5 per cent. Richardson's concentrated sherry-wine bitters contains 47.5 per cent, 2.5 less than whiskey and brandy. Walker's vinegar bitters contains 6.1 per cent; and Copp's White Mountain bitters, about the same quantity.

CHEESE-POISONING.—From the *Sanitary Inspector* we learn that already this season there have been reported many cases of cheese-poisoning, particularly in Ohio. The State Board of Health



LOWER COURSE OF THE SARAFSHAN.

open country. The latter is evidently the site of ancient forests, of which, except the valuable gum, not a vestige remains. The extensive use of the gum as a varnish in America and Europe has for many years led to a large export trade. The value of the export in 1887 was £362,449 (about \$1,750,000), or equal to nearly one-half the value of the gold export of the colony for the same year. The search for the gum is engaged in by both Europeans and Maoris; and at certain seasons of the year as many as ten thousand persons are engaged in connection with this industry. The gum-digger's outfit consists of a steel-tipped prod, a spade, and a bag, and, although he cannot indulge in the dreams of sudden wealth which fascinate the gold-seeker, he is sure, at least, of always averaging fair wages. Since the commencement of this industry in 1853, the quantity exported to March 31, 1888, represents a value of more than \$22,000,000.

HEALTH MATTERS.

TONICS AND BITTERS.—In a former number of *Science* we called attention to the excellent work done by Dr. B. F. Davenport, chemist to the State Board of Health of Massachusetts, in the examination of foods and drugs. Recently he has been analyzing the tonics and bitters with which the market is flooded. The number of these which have been examined by him is forty-seven. Of this number, forty-six contain alcohol, in quantity varying from 6 to 47.5 per cent, 21.5 per cent being the average. One of the tonics,

of that State was, within a short time, notified of many cases, distributed as follows: at Urbana, sixty-five cases; Mansfield, fifty; West Liberty, thirty-five; Mutual, fourteen; Marion, fifty. The symptoms were vomiting, accompanied with much pain in the stomach, and, in many cases, violent purging. The sickness usually lasted from twelve to forty-eight hours, and great prostration was a marked feature, with syncope in some cases. No deaths occurred. Tyrotoxon is suspected.

THE TYPHOID-BACILLUS.—Dr. C. Seitz, after a careful study of the relation of Eberth's bacillus to typhoid-fever, comes to the following conclusions: 1. Typhoid-fever is produced by the immigration of the typhoid-bacillus. The specific bacillus is found exclusively and is present without exception in typhoid-fever. Inasmuch as typhoid-fever is an exclusively human disease, the negative experiments on animals should not be brought in opposition to the influence of the bacillus as the cause of the fever. 2. The bacillus finds in the intestinal canal of man the conditions for its multiplication, and from there, without penetrating deeply into the tissues, can endanger the organism with its virulent chemical products. 3. The bacillus leaves the intestinal canal (rarely the *vie urinarie*) of the typhoid patient in a condition capable of infecting. 4. On account of its essential biological qualities, it can retain its vitality a long while in the earth (here the saprophytic, or common putrefactive bacteria, impede its multiplication). 5. In water it can live at least a week; in ice, much longer. 6. In milk it can undergo a notable multiplication. 7. The principal means by which the

typhoid-bacillus is transported, are contact with the typhoid-dejections, the use of water or milk contaminated with the bacilli, or of various substances infected through the medium of the air.

MENTAL SCIENCE.

Intellect in Great Britain.

THAT the study of the origin, distribution, and characteristics of eminent men both lends a peculiar charm to history and at the same time furnishes the key to many of the influences that shape civilization, is a thought that has inspired many a student. The temperaments and training of different writers have led them to attack the problem from various points of view. In our own day much interest has been exhibited in the study of great men from what might be called the 'natural history' point of view, — a view that emphasizes the importance of average results in contradistinction to a minute study of the individual as individual; that inquires into the influences of ancestry, of environment, physical, mental, and moral. M. de Candolle's study of scientists, and Mr. Francis Galton's work upon 'Hereditary Genius,' are eminent instances of work in this field. It is as a minor contribution to this study that Dr. A. Conan Doyle (*The Nineteenth Century*, August, 1888) analyzes the geographical distribution of eminent men in the Great Britain of to-day. Such an analysis may suggest the influences of climate, as well as of educational, political, and other artificial surroundings.

The first question is, naturally, who are the eminent men? Dr. Doyle does well in requiring as a test of eminence the appearance of the name in a standard biographical dictionary, such as the 'Men of the Time,' excluding as far as possible all merely local celebrities. He thus finds about 1,150 men, "who have, during the latter part of the Victorian era, attained eminence in literature, poetry, art, music, medicine, sculpture, engineering, law, and other intellectual walks of life." Of these, 824 were born in England, 157 in Scotland, 121 in Ireland, and 49 were born abroad (it should be added that an appreciable number of men are of immediate Irish or Scottish extraction, though born in England). Comparing these numbers with the populations of the three countries (including Wales under England), we find that Scotland ranks first, with 1 man of distinction to 22,000 of the population; England next, with 1 to 31,000; and Ireland last, with 1 to 49,000. If we take Wales separately, England's proportion becomes 1 in 30,000, and Wales foots the list with but 1 in 58,000.

The showing of London, as the great intellectual centre, is a chief point of interest. Of the 824 Englishmen, 235 are of London birth, which, placing the population of London as one-seventh of that of England, gives London 1 celebrity to 16,000, and the provinces not more than 1 in 34,000. This shows at once how strongly the brightest intellects are attracted to the metropolis. But Dr. Doyle points out, that while London stands so well as regards celebrities, if we confine our attention to men of first-rank ability, the provinces show a superiority. While not re-enforcing this statement with percentages, he asks us to remember that Darwin, Owen, Hooker, and Tyndall; that Leighton and Millais; that Herbert Spencer; that Tennyson, Carlyle, Freeman, Lecky; that Dickens and 'George Eliot,' — are all country-born.

Continuing this analysis, it is found that London is especially strong in the production of artists and scientists, — both branches in which organized educational institutions are of supreme value. The following table may serve for a partial comparison of London with the counties to the north and south: —

| | Total Celebrities. | Authors. | Scientists. | Artists. | Poets. | Musicians. |
|----------------------|-----------------------|----------|-------------|----------|--------|------------|
| London. | 235 | 66 | 34 | 37 | 13 | 10 |
| North of London..... | 227 | 64 | 30 | 14 | 9 | 8 |
| South of London..... | 200 | 66 | 18 | 13 | 9 | 4 |

The remaining Londoners include 20 theologians, 12 medical

men, 8 lawyers, 5 sculptors, 4 soldiers, 4 seamen, and 22 who must be classed as miscellaneous.

The detailed analysis of the standing of the several counties is hardly of interest to an American public. In the southern counties there appears 1 celebrity to 23,000 of population. The county of Hampshire stands best, with a ratio of 1 in 13,000. The midland counties are unmistakably and regularly less fertile intellectually than the southern counties, producing only about half the proportion of celebrities, or 1 in 41,000. Physical surroundings furnish no clew to this difference; and Dr. Doyle regards it as racial, as due to a purer and better-developed stock. The four eastern counties of Lincolnshire, Norfolk, Suffolk, and Essex stand even higher than the southern, with a ratio of 1 in 22,000. It is interesting to note that Suffolk is the county of famous women, producing Agnes Strickland, Jean Ingelow, Miss Edwards, and others. In the northern counties the statistics do not bear out their reputation for sagacity, making only 1 in 43,000 celebrated.

"All English results for the larger divisions of the country are put in the shade by the lowlands of Scotland, where 1,800,000 people yield 97 celebrities, or 1 in 18,500. These figures put that portion of Scotland which lies between the Forth and Clyde on the north, and the English border, in the proud position of having reared a larger number of famous men in the later Victorian era than any other stretch of country of equal size." "The single town of Edinburgh has produced no less than 46 worthies, which, when compared with the population, gives an average of 1 in 5,500, nearly three times as high as that of London." The north of Scotland furnishes 31 names, in which the Aberdeenshire district ranks best.

The following table for Ireland shows that Dublin can well hold its own with any English city in its contribution to English worthies: —

| | Population. | Celebrities. | Ratio. |
|-----------------------|-------------|--------------|--------------|
| Town of Dublin..... | 400,000 | 45 | 1 in 8,500 |
| Rest of Leinster..... | 900,000 | 12 | 1 in 75,000 |
| Munster..... | 1,390,000 | 29 | 1 in 47,000 |
| Connaught..... | 846,000 | 7 | 1 in 120,000 |
| Ulster..... | 1,800,000 | 27 | 1 in 66,000 |

In reviewing these results, Dr. Doyle notices, that, if a line be drawn through the centre of Lincolnshire, the poetry of the nation will be found on the south of it. The list includes Tennyson, Swinburne, Browning, William Morris, Matthew Arnold, Sir Edwin Arnold, Gosse, and a host of lesser lights; while the few above this line are readily counted. "It may be generally stated, that, with a few notable exceptions, music, poetry, and art reach their highest development in the south, while theology, science, and engineering predominate in higher altitudes." Again: the towns have a greater intellectual activity than the country, and the agricultural districts are usually richer in great men than manufacturing or mining districts.

SPEECH AND MUSIC IN DISEASE. — In those strange mental disorders in which one of the factors of speech is lost, it is a general law that the most recently organized function, the one representing the higher stages of civilization and education, is the one first to be affected. A German alienist (*Neurologisches Centralblatt*, Sept. 15) has recently described cases admirably illustrating the truth of this generalization. Expression by gesture, without the use of symbolic words, is a more primitive form of expression than is regulated speech. Similarly the expression of emotional states by mere sound, by music, is an earlier acquisition than speech. In 16 cases of aphasia, 11 showed marked inability to express their thoughts by the ordinary vocal articulation. The defect was not a loss of intelligence or a paralysis, but the association between the ideas and the feeling of the vocal mechanism when uttering the sounds expressing such ideas is lost. In these eleven cases the power of singing and understanding melodies was retained. These patients, too, retained the gesture-language and full powers of emotional expression. They could automatically repeat what was spoken to them just as well when this made sense as when it did not. In the other five